# OVERVIEW

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SD card reader</td>
</tr>
<tr>
<td>2</td>
<td>USB 3.2 Gen 1</td>
</tr>
<tr>
<td>3</td>
<td>Kensington Security Slot</td>
</tr>
<tr>
<td>4</td>
<td>HDMI 2.0</td>
</tr>
<tr>
<td>5</td>
<td>USB 3.2 Gen 1</td>
</tr>
<tr>
<td>6</td>
<td>Nano-SIM card slot *</td>
</tr>
<tr>
<td>7</td>
<td>Headphone / microphone combo jack (3.5mm)</td>
</tr>
<tr>
<td>8</td>
<td>Ethernet (RJ-45)</td>
</tr>
<tr>
<td>9</td>
<td>USB-C 3.2 Gen 1</td>
</tr>
<tr>
<td>10</td>
<td>2x USB-C 3.2 Gen 2 / Thunderbolt 3</td>
</tr>
<tr>
<td>11</td>
<td>Power connector</td>
</tr>
</tbody>
</table>

**Notes:**
- Ports with * are only available on selected models
PERFORMANCE

Processor

Processor Family
10th Generation Intel® Core™ i5 / i7 / i9 or Intel Xeon® Processor

**

<table>
<thead>
<tr>
<th>Processor Name</th>
<th>Cores</th>
<th>Threads</th>
<th>Base Frequency</th>
<th>Max Frequency</th>
<th>Cache</th>
<th>Memory Support</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core i5-10400H</td>
<td>4</td>
<td>8</td>
<td>2.6GHz</td>
<td>4.6GHz</td>
<td>8MB</td>
<td>DDR4-2933</td>
<td>Intel UHD Graphics</td>
</tr>
<tr>
<td>Core i7-10750H</td>
<td>6</td>
<td>12</td>
<td>2.6GHz</td>
<td>5.0GHz</td>
<td>12MB</td>
<td>DDR4-2933</td>
<td>Intel UHD Graphics</td>
</tr>
<tr>
<td>Core i7-10850H</td>
<td>6</td>
<td>12</td>
<td>2.7GHz</td>
<td>5.1GHz</td>
<td>12MB</td>
<td>DDR4-2933</td>
<td>Intel UHD Graphics</td>
</tr>
<tr>
<td>Core i7-10875H</td>
<td>8</td>
<td>16</td>
<td>2.3GHz</td>
<td>5.1GHz</td>
<td>16MB</td>
<td>DDR4-3200</td>
<td>Intel UHD Graphics</td>
</tr>
<tr>
<td>Core i9-10850H</td>
<td>8</td>
<td>16</td>
<td>2.4GHz</td>
<td>5.1GHz</td>
<td>16MB</td>
<td>DDR4-2933</td>
<td>Intel UHD Graphics</td>
</tr>
<tr>
<td>Core i9-10885H</td>
<td>8</td>
<td>16</td>
<td>2.7GHz</td>
<td>5.3GHz</td>
<td>16MB</td>
<td>DDR4-3200</td>
<td>Intel UHD Graphics</td>
</tr>
<tr>
<td>Xeon W-10855M</td>
<td>6</td>
<td>12</td>
<td>2.8GHz</td>
<td>5.1GHz</td>
<td>12MB</td>
<td>DDR4-2933</td>
<td>Intel UHD Graphics</td>
</tr>
<tr>
<td>Xeon W-10885M</td>
<td>8</td>
<td>16</td>
<td>2.4GHz</td>
<td>5.3GHz</td>
<td>16MB</td>
<td>DDR4-2933</td>
<td>Intel UHD Graphics</td>
</tr>
</tbody>
</table>

Operating System

Operating System
- Windows® 10 Pro 64
- Windows 10 Pro 64 for Workstations
- Windows 10 Home 64
- Fedora Linux
- Ubuntu Linux LTS
- Red Hat Enterprise Linux (certified only)
- No operating system

Graphics

Graphics

<table>
<thead>
<tr>
<th>Graphics</th>
<th>Type</th>
<th>Memory</th>
<th>Key Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>NVIDIA® Quadro® T1000</td>
<td>Discrete</td>
<td>4GB GDDR6</td>
<td>DirectX® 12</td>
</tr>
<tr>
<td>NVIDIA Quadro T2000</td>
<td>Discrete</td>
<td>4GB GDDR5</td>
<td>DirectX 12</td>
</tr>
<tr>
<td>NVIDIA Quadro RTX 3000</td>
<td>Discrete</td>
<td>6GB GDDR6</td>
<td>DirectX 12</td>
</tr>
<tr>
<td>NVIDIA Quadro RTX 4000 with Max-Q Design</td>
<td>Discrete</td>
<td>8GB GDDR6</td>
<td>DirectX 12</td>
</tr>
<tr>
<td>NVIDIA Quadro RTX 5000 with Max-Q Design</td>
<td>Discrete</td>
<td>16GB GDDR6</td>
<td>DirectX 12</td>
</tr>
</tbody>
</table>

Monitor Support

Monitor Support
Supports up to 5 independent displays via native display and 4 external monitors; supports external monitors via HDMI® (up to 4K@60Hz), USB-C (up to 4K@60Hz) or Thunderbolt™ (one supports up to 5K@60Hz and the other supports up to 4K@60Hz)

Chipset

Chipset
Intel WM490 chipset

Memory

Max Memory
- Up to 128GB DDR4-2933

Memory Slots
- Four DDR4 SO-DIMM slots, dual-channel capable

Memory Type
**Memory Protection**
ECC on models with ECC DIMMs and Xeon processor

Notes:
1. The max memory is based on the test results with current Lenovo® memory offerings. The system may support more memory as the technology develops.
2. Non-ECC memory is actually DDR4-3200 but may run at DDR4-2933 due to processor limitation

**Storage**

**Storage Support**
Up to two drives, 2x M.2 SSD
- M.2 2280 SSD up to 2TB

**Storage Type**

<table>
<thead>
<tr>
<th>Disk Type</th>
<th>Interface</th>
<th>RPM</th>
<th>Security</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.2 2280 SSD</td>
<td>PCIe NVMe, PCIe 3.0 x4</td>
<td>-</td>
<td>Opal2</td>
</tr>
</tbody>
</table>

**RAID**
RAID 0/1 support

**Removable Storage**

**Optical**
None

**Card Reader**
SD card reader

**Multi-Media**

**Audio Chip**
High Definition (HD) Audio, Realtek® ALC3286 codec

**Speakers**
Stereo speakers, Dolby® Atmos®

**Microphone**
- Dual array microphone, far-field
- No microphone

**Camera**
- 720p, with ThinkShutter, fixed focus
- IR & 720p hybrid, with ThinkShutter, fixed focus
- No camera

**Battery**

**Battery**
Integrated Li-Polymer 94Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 230W AC adapter

**Max Battery Life**
MobileMark® 2014: 16.4 hr
MobileMark 2018: 10.3 hr
JEITA 2.0: 17.4 hr

Notes:
1. All battery life claims are approximate maximum and based on results using the MobileMark 2014, MobileMark 2018, JEITA 2.0, continuous 1080p video playback (with 150nits brightness and default volume level) or Google Power Load Test (PLT) battery-life benchmark tests. Actual battery life will vary and depends on many factors such as product configuration and usage, software use, wireless functionality, power management settings, and screen brightness. The maximum capacity of the battery will decrease with time and use.

**Power Adapter**

**Power Adapter**
• 170W slim tip (2-pin) AC adapter
• 170W slim tip (3-pin) AC adapter
• 230W slim tip (3-pin) AC adapter

DESIGN

Display

<table>
<thead>
<tr>
<th>Size</th>
<th>Resolution</th>
<th>Touch</th>
<th>Type</th>
<th>Brightness</th>
<th>Surface</th>
<th>Aspect Ratio</th>
<th>Contrast Ratio</th>
<th>Color Gamut</th>
<th>Viewing Angle</th>
<th>Key Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.6”</td>
<td>FHD (1920x1080)</td>
<td>None</td>
<td>IPS</td>
<td>300 nits</td>
<td>Anti-glare</td>
<td>16:9</td>
<td>700:1</td>
<td>72% NTSC</td>
<td>160°</td>
<td></td>
</tr>
<tr>
<td>15.6”</td>
<td>FHD (1920x1080)</td>
<td>None</td>
<td>IPS</td>
<td>500 nits</td>
<td>Anti-glare</td>
<td>16:9</td>
<td>1200:1</td>
<td>72% NTSC</td>
<td>160°</td>
<td>Dolby Vision™, HDR</td>
</tr>
<tr>
<td>15.6”</td>
<td>UHD (3840x2160)</td>
<td>None</td>
<td>IPS</td>
<td>600 nits</td>
<td>Anti-glare</td>
<td>16:9</td>
<td>1400:1</td>
<td>100% Adobe® RGB</td>
<td>178°</td>
<td>Dolby Vision, HDR</td>
</tr>
<tr>
<td>15.6”</td>
<td>UHD (3840x2160)</td>
<td>Multi-touch</td>
<td>OLED</td>
<td>SDR 400nit, HDR</td>
<td>Anti-reflection Anti-smudge</td>
<td>16:9</td>
<td>1000000:1</td>
<td>100% DCI-P3</td>
<td>170°</td>
<td>Dolby Vision, HDR</td>
</tr>
</tbody>
</table>

Color Calibration
• X-Rite® Pantone® factory color calibration (UHD display)
• No color calibration

Touchscreen
• On-cell touch, supports 10-point touch
• Non-touch

Notes:
1. California Electronic Waste Recycling Fee
   In California, per state law, Lenovo charges an electronic waste recycling fee on this covered device at the time of sale of the product. For more information, go to https://www.carecycle.ca.gov/Electronics/Consumer
2. For non-OLED display, HDR is only supported under hybrid mode

Input Device
Pen
• Lenovo Pen Pro (for UHD OLED models)
• No support (non-touch display doesn’t support pen input)

Keyboard
6-row, spill-resistant, multimedia Fn keys with Unified Communications controls, numeric keypad

Keyboard Backlight
LED backlight

UltraNav™
3-button TrackPoint® pointing device and Mylar® surface multi-touch touchpad

Mechanical
Dimensions (WxDxH)

<table>
<thead>
<tr>
<th>Models</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Touch models</td>
<td>375.4 x 252.3 x 25.25-32.2 mm (14.24 x 9.67 x 0.99-1.27 inches)</td>
</tr>
<tr>
<td>Non-touch models</td>
<td>375.4 x 252.3 x 24.5-31.45 mm (14.24 x 9.67 x 0.96-1.24 inches)</td>
</tr>
</tbody>
</table>

Weight[^1]

<table>
<thead>
<tr>
<th>Models</th>
<th>Weight</th>
</tr>
</thead>
</table>

[^1]: Dimensions vary by model and configuration.
### FHD models
2.74 kg (6.05 lbs)

<table>
<thead>
<tr>
<th>Case Color</th>
<th>Black</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case Material</td>
<td>PPS695 + GF 50% (top), PPS + GF (bottom)</td>
</tr>
</tbody>
</table>

**Notes:**
1. The system weight varies depending on configurations

## CONNECTIVITY

### Network

**Onboard Ethernet**
- Gigabit Ethernet, Intel Ethernet Connection I219-LM (vPro models), supports Wake-on-LAN
- Gigabit Ethernet, Intel Ethernet Connection I219-V (non-vPro models), supports Wake-on-LAN

**WLAN + Bluetooth®**
- Intel Wi-Fi® 6 AX201, 802.11ax 2x2 Wi-Fi + Bluetooth 5.1, M.2 Card
- No WLAN and Bluetooth

**WWAN**
- Wireless WAN upgradable to 4G
- Integrated Mobile Broadband 4G LTE-A, Fibocom L860-GL, MIMO 4x4, M.2 card
- No support

**SIM Card**
No SIM card inbox

**NFC**
No support

### Ports

<table>
<thead>
<tr>
<th>Standard Ports</th>
</tr>
</thead>
<tbody>
<tr>
<td>2x USB 3.2 Gen 1 (one Always On)</td>
</tr>
<tr>
<td>1x USB-C 3.2 Gen 1 (support data transfer, Power Delivery and DisplayPort™ 1.4)</td>
</tr>
<tr>
<td>2x USB-C 3.2 Gen 2 / Thunderbolt 3 (support data transfer, Power Delivery and DisplayPort 1.4)</td>
</tr>
<tr>
<td>1x HDMI 2.0</td>
</tr>
<tr>
<td>1x SD card reader</td>
</tr>
<tr>
<td>1x Ethernet (RJ-45)</td>
</tr>
<tr>
<td>1x Headphone / microphone combo jack (3.5mm)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Optional Ports***</th>
</tr>
</thead>
<tbody>
<tr>
<td>1x Nano-SIM card slot (WWAN model)</td>
</tr>
<tr>
<td>1x Smart card reader</td>
</tr>
</tbody>
</table>

**Notes:**
1. The transfer speed of following ports will vary and, depending on many factors, such as the processing speed of the host device, file attributes and other factors related to system configuration and your operating environment, will be slower than theoretical speed.

- **USB 2.0**: 480 Mbit/s;
- **USB 3.2 Gen 1** (SuperSpeed USB 5Gbps, formerly USB 3.0 / USB 3.1 Gen 1): 5 Gbit/s;
- **USB 3.2 Gen 2** (SuperSpeed USB 10Gbps, formerly USB 3.1 Gen 2): 10 Gbit/s;
- **USB 3.2 Gen 2x2** (SuperSpeed USB 20Gbps): 20 Gbit/s;
- Thunderbolt 3: 40 Gbit/s;
- FireWire 400: 400 Mbit/s;
- FireWire 800: 800 Mbit/s

### Monitor Cable

**Monitor Cable***
- Lenovo HDMI to VGA Monitor Adapter
- Lenovo USB-C to DisplayPort Adapter
- Lenovo USB-C to VGA Adapter
- No monitor cable
SECURITY & PRIVACY

Security

Security Chip**
- Discrete TPM 2.0, TCG certified
- Firmware TPM 2.0 integrated in chipset
- Disabled (in some regions)

Physical Locks

Kensington® Security Slot

Smart Card Reader
- Smart card reader
- No smart card reader

Fingerprint Reader

Touch style fingerprint reader on palm rest, match-on-chip

BIOS Security
- Supervisor password
- Power-on password
- Hard disk password
- Self-healing BIOS

Other Security
- (Optional) ThinkShutter camera cover
- (Optional) IR camera for Windows Hello

MANAGEABILITY

System Management

System Management
- Intel vPro Technology, DASH
- None

SERVICE

Warranty

Base Warranty**
- 1-year depot service
- 1-year depot with 2-year system board service
- 1-year limited onsite service
- 1-year + 2-year depot service
- 1-year + 2-year limited onsite service
- 3-year (1-yr battery) depot service
- 3-year (1-yr battery) limited onsite service
- No base warranty

ENVIRONMENTAL

Operating Environment

Temperature\(^1\)
- Operating: 5°C (41°F) to 35°C (95°F)
- Storage and transportation in original shipping packaging: -20°C (-4°F) to 60°C (140°F)
- Storage without package: 5°C (41°F) to 43°C (109°F)

Humidity
- Operating: 8% to 95% at wet-bulb temperature 23°C (73°F)
- Storage and transportation: 5% to 95% at wet-bulb temperature 27°C (81°F)

Altitude
Maximum altitude (without pressurization): 3048 m (10,000 ft)

Notes:
1. When you charge the battery, its temperature must be no lower than 10°C (50°F)

ACCESSORIES

Bundled Accessories
None

CERTIFICATIONS

Green Certifications
- EPEAT™ Gold
- ENERGY STAR® 8.0
- RoHS compliant

Other Certifications
- Mil-Spec Test
  MIL-STD-810G military test passed

ISV Certifications
- Please visit www.thinkworkstations.com/isv-certifications/

- Feature with ** means that only one offering listed under the feature is configured on selected models.
- Feature with *** means that one or more offerings listed under the feature could be configured on selected models.

Lenovo reserves the right to change specifications or other product information without notice. Lenovo is not responsible for photographic or typographical errors. LENOVO PROVIDES THIS PUBLICATION “AS IS,” WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore this disclaimer may not apply to you.

- The specifications on this page may not be available in all regions, and may be changed or updated without notice.